Educating with the dark, down and destructive sides of entrepreneurship: impact to entrepreneurial intention

J. M. B., L. D. D., H., M. T., and W. C.

Abstract. The extensive literature on the contributions of entrepreneurship has fostered positivity bias, which must be critically addressed in education, as there are also unsuccessful entrepreneurial endeavors that have pernicious impacts on the psychological, capital, and societal domains. This study aims to analyze the impact of entrepreneurship education (EE) on entrepreneurial intention (EI) through the knowledge of the dark (DR), down (DW), and destructive (DS) sides of entrepreneurship and strategies (STR). It employs a convergent mixed method approach that used survey research involving 122 respondents selected using purposive sampling, which was analyzed with partial least squares structural equation modeling (PLS-SEM) through SmartPLS 4, and interviews with 10 informants probed using thematic analysis. The quantitative analysis revealed that better entrepreneurship education is associated with higher knowledge of the Triple Ds and the strategies to combat them; that only DS and STR are significant predictors of EI as well as partial mediators; and that EE directly impacts EI. The rival explanations conducted for an objective orientation showed that EE significantly influenced DR, DW, DS, STR, and EI; Only DW was insignificant in predicting EI. DR, DS; and STR significantly mediate the relationship between EE and EI. Implications from the results emphasize the importance of incorporating the Triple Ds in the entrepreneurship curriculum. Sample cases investigating the dark and destructive side of entrepreneurship as well as measures to mitigate negative consequences, will not only correct positivity bias but also intensify entrepreneurial intentions.

1 Introduction

Entrepreneurship education (EE) has flourished and become an essential platform where students can develop their entrepreneurial mindset (Daniel, 2016) with the notion that industry and education are interconnected through the actual experience-based learning approach (Ratten & Usmanji, 2021). It is a systematized way of shaping one’s entrepreneurial values and traits; developing the person’s innovativeness and creative thinking to seek, develop, explore, and maximize opportunities; acquiring important...
management skills; and instilling a standardized process in addressing the needs of a business to grow, to become profitable, and to become sustainable in the long run (Shailendra Vyakarnan in World Economic Forum, 2009, as cited in Velasco, 2013).

With the growing interest of Filipino youth in entrepreneurial activities, establishing holistic entrepreneurship education is significant as this hone one’s competencies and mindset and the intention to establish a business venture in the future (Delim et al., 2022).

While there are numerous studies that highlight the positive side of entrepreneurship with young entrepreneurs as catalysts for change and development (Carpenter & Wilson, 2022; Jardim et al., 2021, Daniel, 2016), there is relatively less attention given to difficulties encountered in these pursuits. Entrepreneurship is viewed as gratifying in terms of socioeconomic and psychological outcomes, but positivity bias must be overcome in entrepreneurial studies (Ziemianski & Golik, 2020). It is considered compassionate action to educate about the “negative side” of entrepreneurship and incorporate in studies the Triple Ds (dark side, down side, and destructive side) of entrepreneurship (Shepherd, 2019). De Sordi et al. (2022) assert that the unsuccessful actions of entrepreneurs can have a negative impact in terms of the psychosocial aspect (dark side), capital aspect (down side), and societal aspect (destructive). Even university student-entrepreneurs face many challenges including balancing business-school life, lack of financial resources, high operating costs, having connections with quality mentors, and other psychological and emotional aspects (Ahsan et al., 2018; Fatoki, 2014). Other students have negative entrepreneurship-related concerns such as income uncertainty, stress, lack of time for family, and transferring the issues from the company into the family (Ziemianski & Golik, 2020). These things considered, incorporating the Triple Ds of entrepreneurship in education may better equip students in their curricular entrepreneurial activities and by extension, in their future entrepreneurial endeavors.

A holistic approach to EE is fundamental to preparing students for possible adverse impacts, honing their competencies, and increasing their intention to establish a business venture in the future (Delim et al., 2022). While there are established studies highlighting the positive side of entrepreneurship, there is relatively less attention given to its negative outcomes that can impact individuals and society (Shepherd, 2019).

Hence, we aimed to explore the possible adversities and coping strategies to encourage students to continue pursuing their entrepreneurial intentions. Moreover, abundant studies regarding EE and EI relationships made use of the Theory of Planned Behavior (TPB) constructs as mediators (Otache et al., 2021). In the Philippines, there is no research yet on the knowledge of the “Triple D’s” of entrepreneurship and the strategies that can be observed in EE programs that can affect the students’ EI.

To address this, the study identified several specific research questions:
(a) How significantly does EE influence students’ DR, DW, DS, and STR?;
(b) How much does DR, DW, DS, and STR affect EI?;
(c) To what extent does EE alone influence EI?; and
(d) Do DR, DW, DS, and STR mediate the relationship between EE and EI?

2 Hypothesis Development

Entrepreneurship education encompasses four elements; understanding the fundamental aspects of entrepreneurship (know what) fostering positive attitudes and motivations, among students towards entrepreneurship (know why) recognizing the significance of social connections and networking (know who), and acquiring the necessary skills and abilities, for entrepreneurial success, which include identifying opportunities innovating new products evaluating risks and formulating a comprehensive business plan (Tung, 2011).
Undergraduate programs in entrepreneurship require that they culminate in a practical application of things learned from the various business courses taken. The culminating activity is labeled as practicum, business enterprise simulation, enterprising training, or entrepreneurship capstone. Here, entrepreneurship majors form a partnership and start and operate their own businesses for at least half a year. This experience is a crucial component of entrepreneurship education as it influences students’ knowledge of the Triple Ds as well as awareness of impact reduction strategies.

Hartmann et al. (2021) posit that negative emotions surrounding entrepreneurship are experienced in various stages of the business life cycle. This can also be attributed to the difficulties encountered immediately following venture capitalization (Ahmed & Aassouli, 2022). As the experience in entrepreneurship education starts from the learning of theories and concepts and culminates with the pseudo-experience of putting up a business, students are not only informed but are also exposed to the possibilities of experiencing financial, social, and human capital losses (Thomas, 2023).

Moreover, the drive of higher education institutions to promote sustainability education has shifted the focus to the environmental, economic, and societal impacts of entrepreneurship (Tu & Akhter, 2023). Various studies showed the implied influence of EE on the knowledge of the Triple Ds and strategies (Aly et al., 2021; Anosike, 2017). Thus, experiencing in EE how to put up a business is hypothesized to influence the knowledge of the Triple Ds of entrepreneurship, and consequently, the strategies to counter its effects. Hence, we hypothesize:

H1 to H4: EE has a significant positive impact on the knowledge of the dark (H1), down (H2), and destructive sides (H3) of entrepreneurship and the strategies to reduce the effects of the Triple Ds (H4).

Learning the Triple Ds of entrepreneurship is crucial in understanding the negative impacts of entrepreneurial activities on individuals, society, and the environment (Shepherd, 2019). Ahmed et al. (2022) argue the importance for entrepreneurs to have coping mechanisms and to be more psychologically resilient. Integrating these strategies in EE allows individuals to prepare for the challenges of entrepreneurship. Strategies like maintaining work-life balance, having good time management, and including the negative aspects of entrepreneurship as part of the equation should be considered. Non-individual strategies such as entrepreneurial ecosystem support, sustainability-driven EE, and government and non-state actor support can also reduce negative impacts and promote entrepreneurship (McDaniel & Yuan, 2022). Furthermore, there were also several studies, which show the implicit causal relationship between the knowledge of the Triple Ds and coping strategies and EI (Krichen & Chaabouni, 2021; Usman et al., 2021). Thus, we hypothesize:

H5 to H8: The knowledge of the dark (H5), down (H6), and destructive sides (H7) of entrepreneurship and the strategies (H8) to reduce the effects of the Triple Ds have significant positive impact on EI.

And, while literature has investigated the EE and EI relationship with TPB constructs as mediators, it has also acknowledged the direct effects of EE on EI (Otache et al., 2021; Wu et al., 2022). Thus, we also hypothesize:

H9: EE has significant positive impact on EI

H10 to H13: The knowledge of the dark (H10), down (H11), and destructive sides (H12) of entrepreneurship and strategies to reduce the effects of the Triple Ds (H13) significantly mediate the relationship between EE and EI.
3 Methodology

This study uses a mixed-method approach to investigate the mediating roles of Triple Ds knowledge and strategies between EE and EI, utilizing a descriptive and causal-explanatory design for quantitative data collection and a descriptive design for qualitative data collection. Partial least square structural equation modeling (PLS-SEM) was performed using the latest SmartPLS4 to statistically analyze the relationships among the variables. Thematic analysis was conducted in which themes were identified following the steps of Braun & Clarke (2012).

We integrated quantitative and qualitative data obtained using a concurrent triangulation design (Creswell, 2013). We performed rival explanations to objectively assess the quantitative and qualitative data as both should be treated with equal importance (Patton, 2001). Empirical evidence from various literature supported our claim based on the data results.

The participants of the study were university students, who are currently enrolled in an undergraduate entrepreneurship program and who have already experienced business enterprise simulation. Questionnaires and online surveys were distributed during the entrepreneurship boot camp. A combination of face-to-face and online interaction was conducted to gather respondents and Focus Group Discussion (FGD) with participants in a span of 5 weeks.

The questionnaire consisted of personal demographic and 7-point Likert-type items. The scale for entrepreneurship education was adapted from Tung (2011).
While, the scales for the knowledge of the dark (De Mol et al., 2016; Ratumbuysang, 2018; Salvagioni et al., 2017; Ionescu & Bolcaș, 2017; Pompili, 2019), down (Williamson, 2019; Kollmann et al., 2017; Schonfeld & Mazzola, 2015; Carree & Verheul, 2012) and destructive (Philip et al., 2022; De Sordi et al., 2022; Zietarski, 2018) sides of entrepreneurship, as well as strategies to reduce their effects (McDaniel & Yuan, 2022; Ziemianski & Golik, 2020; Bozhikin & da Costa, 2019; Adebisi, 2018; Mindt & Rieckmann, 2017), were developed by researchers from the reviews of literature. The scale for entrepreneurial intention (Tung, 2011; Liñan & Chen, 2009; Liñan, 2004) was developed the same way. The scales were face and content-validated by experts. Confirmatory factor analysis and reliability analysis were also performed after a pilot with 30 respondents. The results supported the validity and reliability of the scales.

4 Results and Discussions

The results of the PLS-SEM performed show that entrepreneurship education significantly and positively impacts the entrepreneurship students’ knowledge of the dark ($\beta = 0.464, t = 5.196, p < 0.01$), down ($\beta = 0.669, t = 7.932, p < 0.01$), and destructive ($\beta = 0.418, t = 4.128, p < 0.01$) sides of entrepreneurship, as well as of the knowledge of the Triple Ds’ impact reduction strategies ($\beta = 0.603, t = 6.296, p < 0.01$).

![Diagram](https://example.com/diagram.png)

**Fig. 2.** Partial least square structural equation model

Meanwhile, knowledge of the dark ($\beta = 0.0755, t = 0.864, p = .389$) and down ($\beta = 0.1845, t = 1.408, p = .162$) sides of entrepreneurship do not significantly affect the students’ entrepreneurial intentions. Only knowledge of the destructive side of entrepreneurship ($\beta = 0.1896, t = 2.215, p = .029$) and knowledge of the strategies to reduce the impact of the Triple Ds ($\beta = 0.3069, t = 2.828, p < 0.01$) substantially influence entrepreneurial intention. Also, the direct effect of entrepreneurship education on entrepreneurial intentions ($\beta = 0.593, t = 8.514, p < 0.01$) was found significant.
### Table 2. Researchers’ Analysis Using Rival Explanation

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Quantitative Data Results</th>
<th>Qualitative Data Results</th>
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<tbody>
<tr>
<td></td>
<td>Statistics</td>
<td>Decision</td>
</tr>
<tr>
<td><strong>H1</strong>: EE &gt; DR</td>
<td>$\beta = 0.464$, $t = 5.196$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H2</strong>: EE &gt; DW</td>
<td>$\beta = 0.669$, $t = 7.932$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H3</strong>: EE &gt; DS</td>
<td>$\beta = 0.418$, $t = 4.128$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H4</strong>: EE &gt; STR</td>
<td>$\beta = 0.603$, $t = 6.296$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H5</strong>: DR &gt; EI</td>
<td>$\beta = 0.0755$, $t = 0.864$, $p &gt; 0.05$</td>
<td>Not Supported</td>
</tr>
<tr>
<td><strong>H6</strong>: DW &gt; EI</td>
<td>$\beta = 0.1845$, $t = 1.408$, $p &gt; 0.05$</td>
<td>Not Supported</td>
</tr>
<tr>
<td><strong>H7</strong>: DS &gt; EI</td>
<td>$\beta = 0.1896$, $t = 2.215$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H8</strong>: STR &gt; EI</td>
<td>$\beta = 0.3069$, $t = 2.828$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H9</strong>: EE &gt; EI</td>
<td>$\beta = 0.593$, $t = 8.514$, $p &lt; 0.05$</td>
<td>Supported</td>
</tr>
</tbody>
</table>
Mediation analysis was not conducted anymore for the paths, EE -> DR -> EI and EE -> DW -> EI after the second condition of the mediation analysis was not met using the procedure outlined by Baron & Kenny (1986). While, the paths, EE -> DS -> EI (β = 0.113, t = 2.750, p < 0.05) and EE -> STR -> EI (β = 0.189, t = 2.796, p < 0.05) registered significant indirect effects.

Thus, partial mediation is supported in the case of knowledge of the destructive side of entrepreneurship and knowledge of the strategies to reduce the impact of the Triple Ds as intervening variables.

Various themes were determined by the thematic analysis. This demonstrates the breadth of students' knowledge of the Triple Ds and strategies, as well as how entrepreneurial education enhances students' knowledge of the triple Ds, and how this, in turn, influences entrepreneurial intent. Using competing explanations (Patton, 2001), we analyzed the results objectively and determined whether we favor the quantitative or qualitative findings. EE was found to be a significant predictor of the students' DR (Aly et al., 2021), DW (Solesvik 2023).
et al., 2013), DS (Dobele, 2016), STR (Anosike, 2017), and EI (Otache et al., 2021). We favored the qualitative data regarding DR diminishing the EI of pupils (Tsai et al., 2016; Aly et al., 2021). Leaning toward quantitative data, DS increases EI (Usman et al., 2021), whereas DW has no influence on EI The full report is presented in Table 2.

## 5 Conclusions

As a result of receiving education in entrepreneurship, students gain an understanding of the entrepreneurial challenges known as the Triple Ds. They also learn effective strategies to mitigate their negative impacts because of experiences in the university particularly in the business enterprise simulation. Using rival explanations, we reached a consensus that entrepreneurship education significantly enhances students’ comprehension of the Triple Ds, including challenges related to capital and their destructive effects. It also helps them become more aware of countermeasures based on both qualitative and quantitative data as supported by studies.

When examining the impact of DR on EI, we gave priority to qualitative findings, which suggest that negative emotions have a considerable detrimental effect on an individual’s EI. Students’ inclination towards entrepreneurship is strengthened through knowledge of strategies to counter the impacts of the Triple Ds. Additionally, having access to resources and support networks serve as safety net for students facing capital-related challenges. There is evidence supporting the assertion that EE has an impact, on EI. This impact is achieved through the development of students understanding of environmental and social challenges associated with entrepreneurial pursuits.

Significant theoretical contributions are made to the field of entrepreneurship education. This paper empirically establishes the impact of entrepreneurship education on students' comprehension of the more nuanced, negative aspects of entrepreneurship, namely the dark, destructive, and downward sides ("Triple Ds"). Prior research has frequently focused on the positive aspects of entrepreneurship, such as the recognition of opportunities and financial benefits.

This study provides a void by demonstrating that entrepreneurship education can indeed equip students with knowledge of both the advantages and disadvantages of entrepreneurial endeavors. Also, our findings contradict the simple notion that a greater understanding of the complexities and difficulties of entrepreneurship, such as its "dark" and "down" aspects, would necessarily discourage entrepreneurial intent. On the other hand, only the "destructive" aspect and knowledge of Triple Ds' impact reduction strategies were found to have a significant effect on entrepreneurial intentions.

These emphasize the need for educational leaders in business to include topics on the negative or difficult aspects of entrepreneurship. Not only will this make students more knowledgeable, but it will also equip them early with mitigation strategies, which appear to positively influence their entrepreneurial intentions.

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